

THE CHILD PENALTY ATLAS

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LSE - HUB Workshop on Child Penalties

MOTIVATION

- Significant gender gaps in employment, wages & earnings exist in virtually all countries
 - Size & persistence of GG seem closely related to **child penalties**: causal impact of having children on outcomes of women vs men
- ⇒ We want to know how child penalties vary across time and space
- **Issue:** Current event-study methodology requires extensive panel data with detailed labour market information, only available for a handful of highly developed countries

THIS PROJECT

We bridge current limitations in literature:

1. Create **pseudo-event studies** around child birth using cross-sectional data
 - Validate the approach comparing with panel when possible
 - Expanding set of countries where child penalty can be calculated
2. Data collection: harmonise individual-level data for 134 countries from various underlying sources

We show significant variation in child penalties:

1. Over the course of development
2. Conditional on development

DATA SOURCES

We combine sources for 134 different countries

- * Representative of 7.3 billion people, \approx 95% of global population.

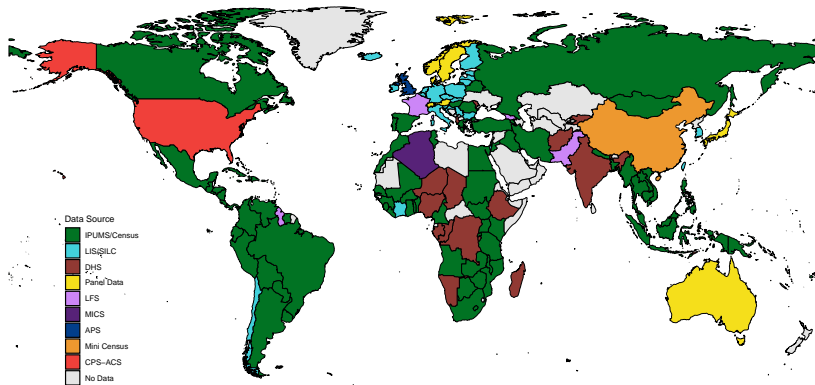
- Cross-sectional data

- IPUMS (75 countries): large sample from census
- Country-specific census (2 countries)
- DHS (17 countries): household survey harmonised via GJD
- LIS (16 countries): cross-national initiative harmonising national surveys, mostly from developed countries
- EU-SILC (8 countries): harmonised national surveys
- Country-specific LFS survey (5 countries)
- Country-specific household survey (4 countries)

- Panel data

- Administrative data: Austria, Denmark, Sweden, Switzerland
- Survey data: Australia (HILDA), Japan (JHPS)

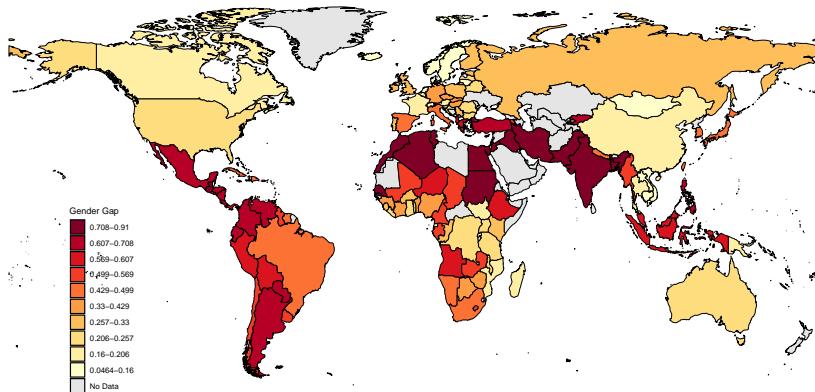
MAP OF DATA SOURCES



HARMONIZATION & VARIABLE DEFINITION

- Focus on **employment penalty**
- Employment measure:
 - Working for pay for an employer or self-employed
 - Contemporaneous to time of interview
 - Weekly vs Annual
 - Excludes all forms of protected parental leave
 - Sources
 - Robustness
- Fertility history
 - Constructed from info on family linkages and age of household members
- Additional variables:
 - Marital status (and year of first marriage)
 - Some demographics: education, urban vs rural

HEATMAP OF GENDER GAPS IN EMPLOYMENT



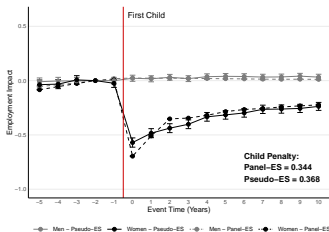
METHODOLOGY

PSEUDO-EVENT STUDY

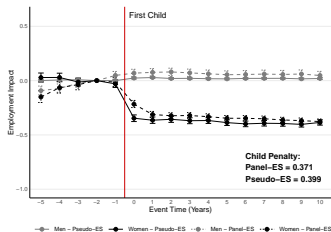
- Denote event-time relative to the first childbirth by t
 - For those with children, we observe event times $t \geq 0$
 - For those without children, we don't observe event times $t < 0$
- Idea: create a synthetic population of “future parents” who are very similar to observed parents
- Consider parent i observed at event-time $t = 0$, at age a with characteristics X_i
- Parent i is matched to:
 - Non-parents observed in year y with age $a - s$ and characteristics $X_j = X_i \Rightarrow$ observation for $t = -s$
 - X_i includes gender, marital status, education and urban/rural

VALIDATION OF PSEUDO-EVENT STUDY APPROACH

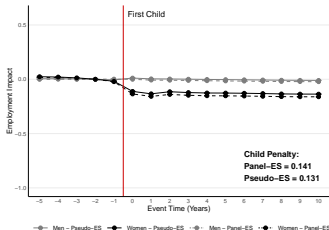
A: Austria



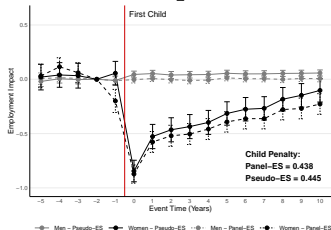
B: Chile



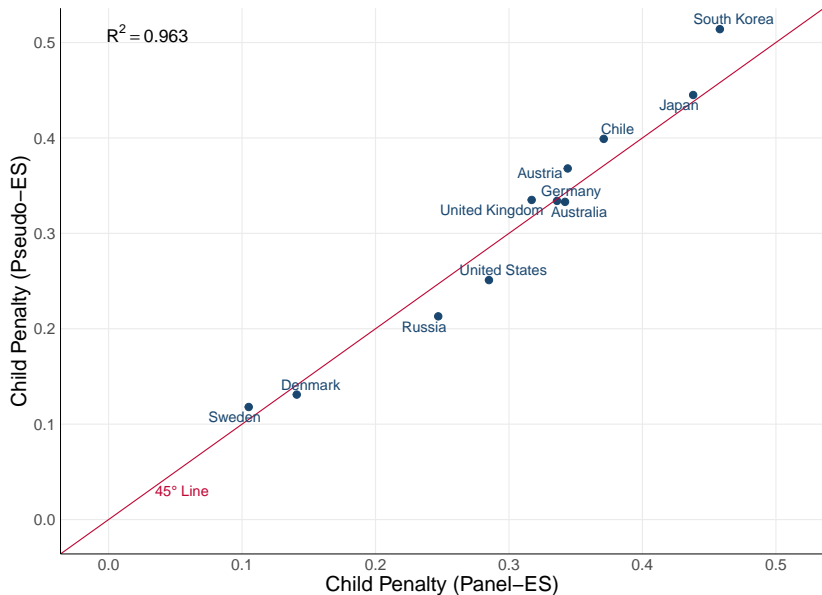
C: Denmark



D: Japan

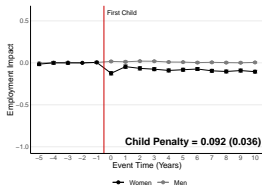


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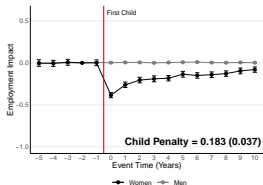


CHILD PENALTIES BY CONTINENT

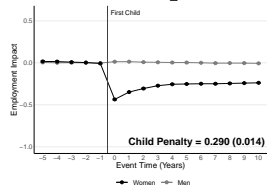
A: Africa



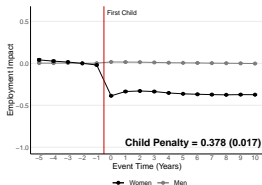
B: Asia



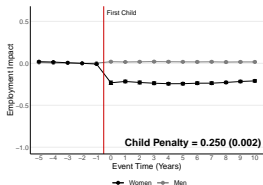
C: Europe



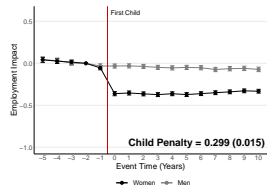
D: Latin America



E: North America

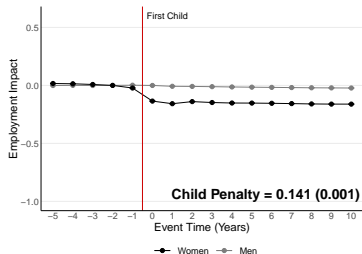


F: Oceania

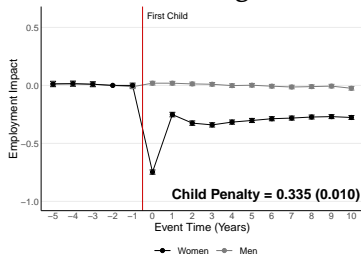


CHILD PENALTIES IN EUROPE 1/2

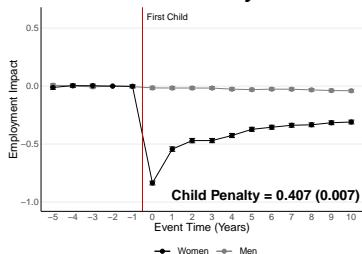
A: Denmark



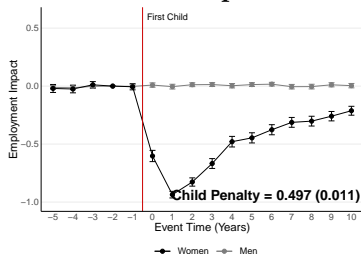
B: United Kingdom



C: Germany

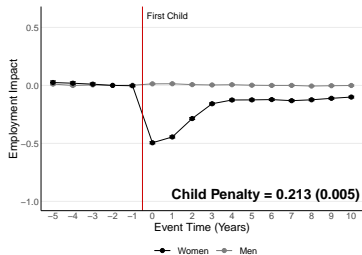


D: Czech Republic

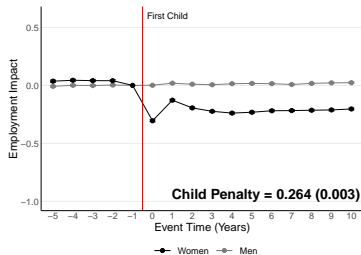


CHILD PENALTIES IN EUROPE 2/2

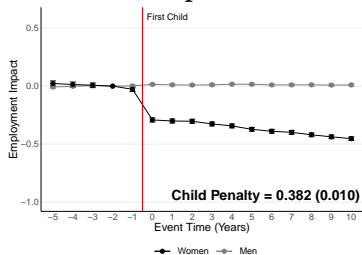
E: Russia



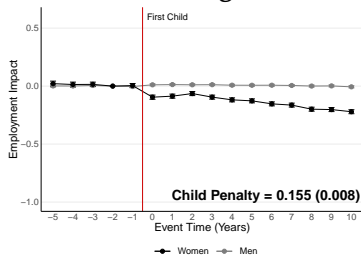
F: France



G: Spain

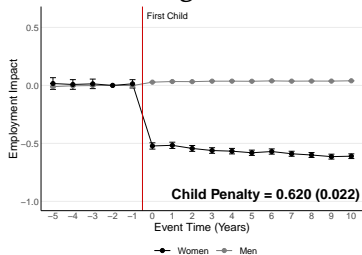


H: Portugal

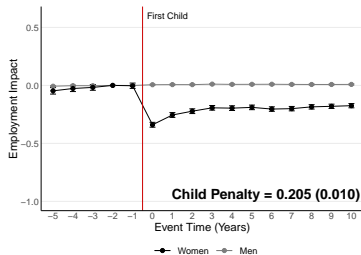


CHILD PENALTIES IN ASIA 1/2

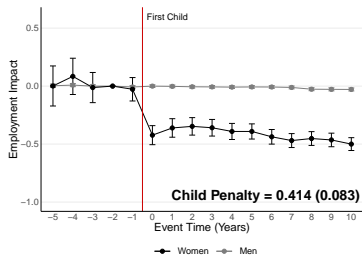
A: Bangladesh



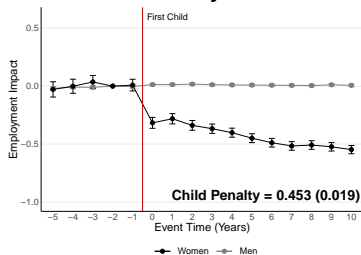
B: Indonesia



C: Iran

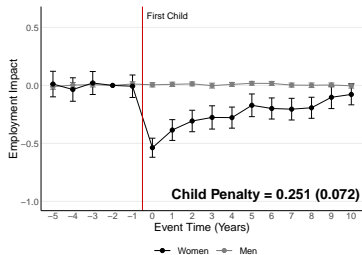


D: Malaysia

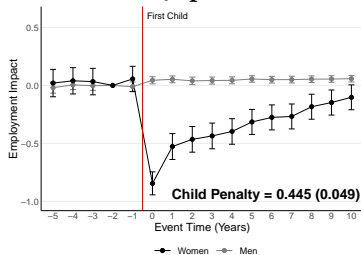


CHILD PENALTIES IN ASIA 2/2

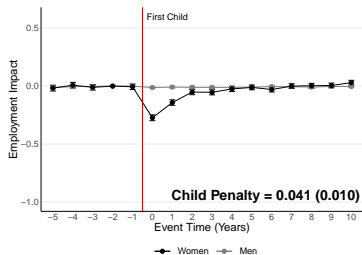
E: India



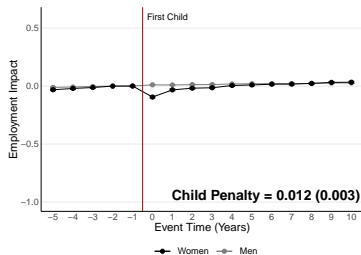
F: Japan



G: China

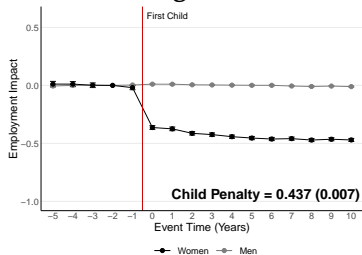


H: Vietnam

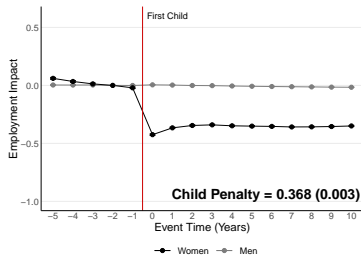


CHILD PENALTIES IN LATIN AMERICA 1/2

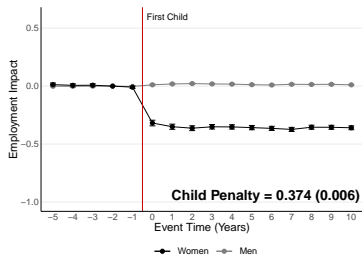
A: Argentina



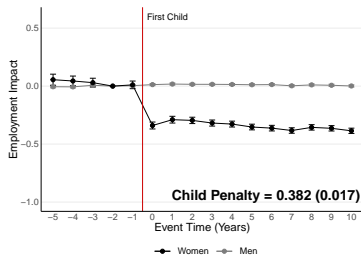
B: Brazil



C: Chile

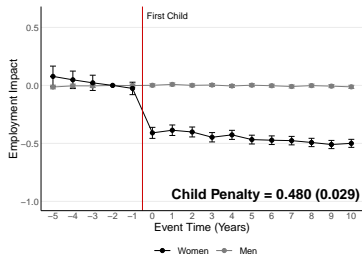


D: Colombia

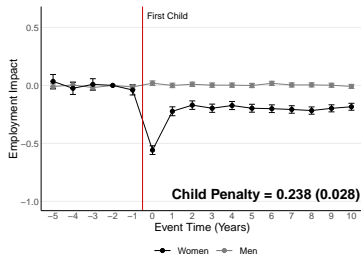


CHILD PENALTIES IN LATIN AMERICA 2/2

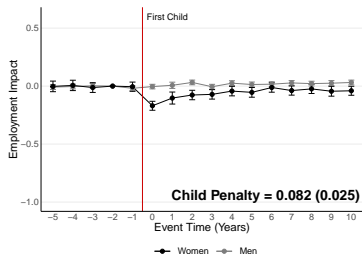
E: Costa Rica



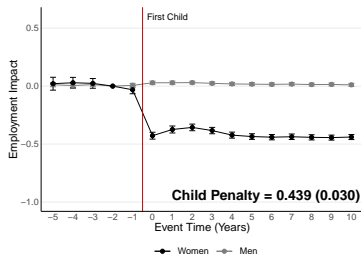
F: Cuba



G: Haiti

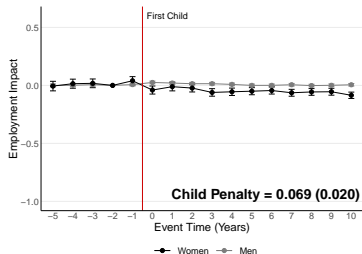


H: Mexico

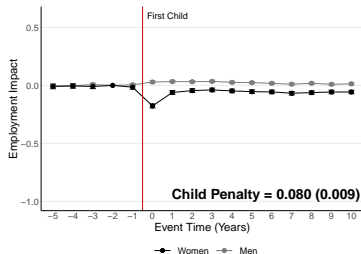


CHILD PENALTIES IN AFRICA 1/2

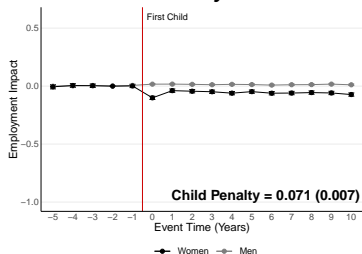
A: Cameroon



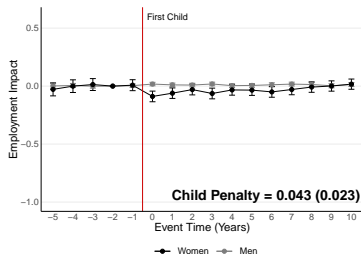
B: Ghana



C: Kenya

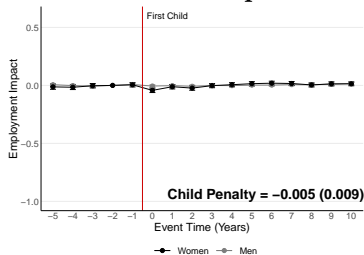


D: Zimbabwe

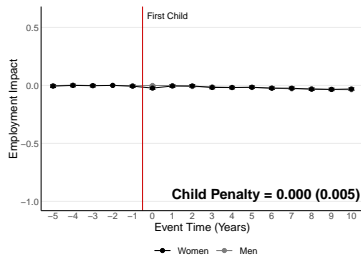


CHILD PENALTIES IN AFRICA 2/2

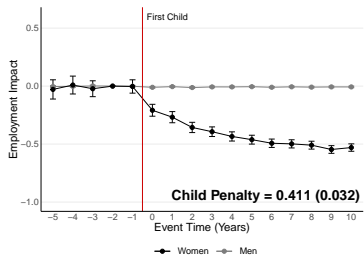
E: Mozambique



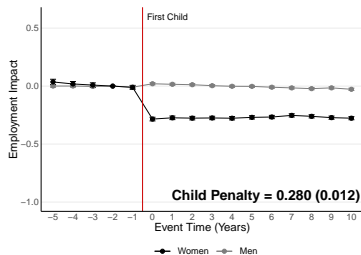
F: Tanzania



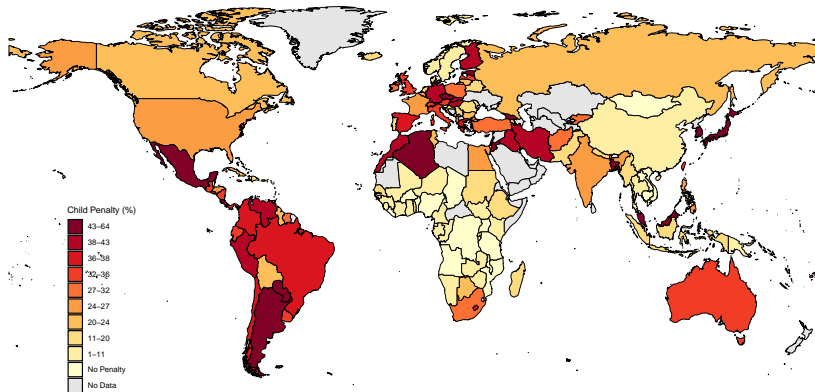
G: Morocco



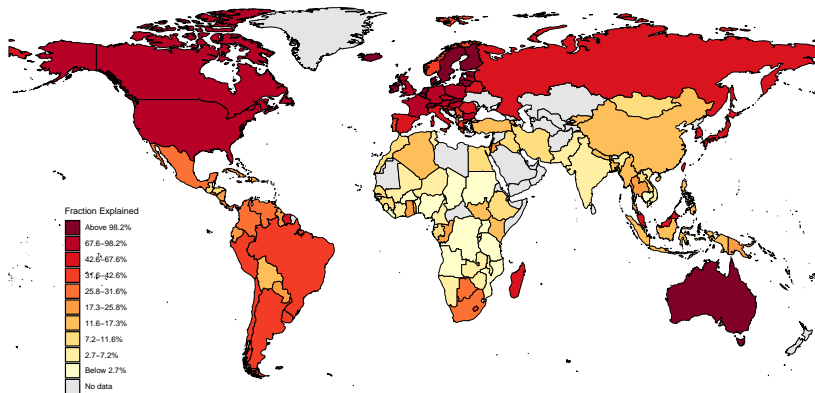
H: South Africa



HEATMAP OF CHILD PENALTIES



FRACTION OF GAP EXPLAINED BY CHILD PENALTIES



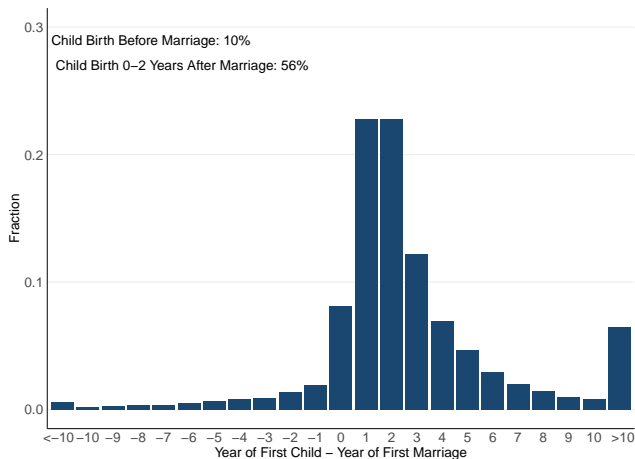
$$\text{Fraction Explained} = \frac{\text{Child Penalty (unscaled)} \times \text{Fraction Mothers}}{\text{Raw Gender Gap}}$$

MARRIAGE PENALTY VS CHILD PENALTY

- Institution of marriage and parenthood often closely connected
- In low- and middle-income countries:
 - Few children born before or outside marriage
 - Child birth follows soon after marriage
- ⇒ Marriage \equiv anticipation of parenthood
- Does marriage impose labor market penalties on women over and above child birth?
 - Estimate marriage penalties
 - Leverage information on timing of 1st marriage
- Explore anticipated vs realized effects of parenthood

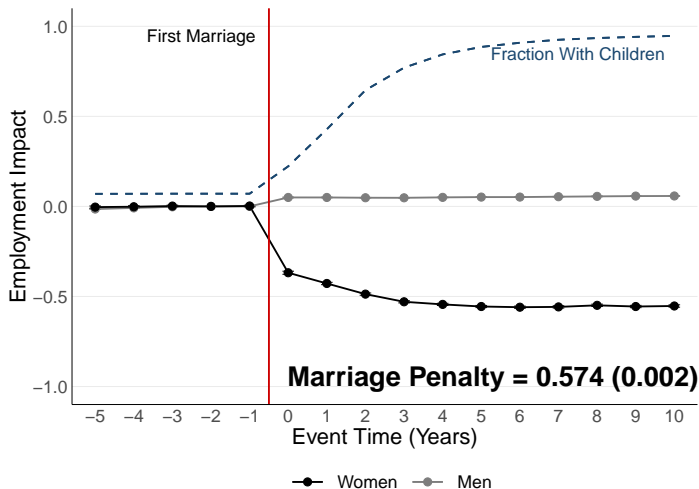
TIME BETWEEN FIRST CHILD AND FIRST MARRIAGE

IPUMS CENSUS DATA



MARRIAGE PENALTIES: CASE STUDY OF BRAZIL

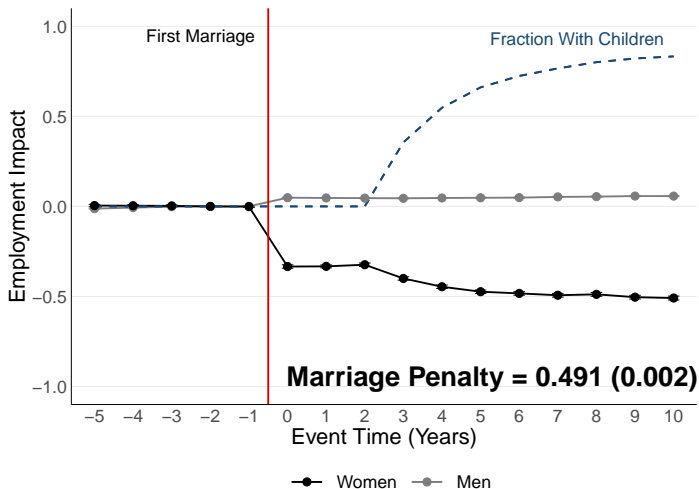
FULL SAMPLE



Robustness of Child Penalty Estimates

MARRIAGE PENALTIES: CASE STUDY OF BRAZIL

EXCLUDE INDIVIDUALS HAVING FIRST CHILD AT $t \leq 2$

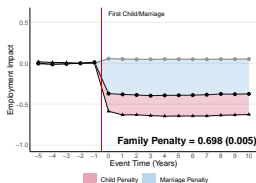


FAMILY PENALTIES FOR SELECTED COUNTRIES

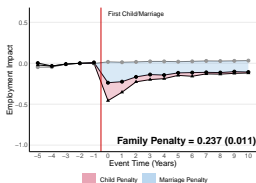
HORSE-RACE SPECIFICATION:

$$\gamma_{it'}^g = \alpha^g \cdot D_{it}^{Child} + \eta^g \cdot D_{it'}^{Marriage} + \beta^g \cdot D_{it}^{Age} + \gamma^g \cdot D_{it}^{Year} + \nu_{it'}^g.$$

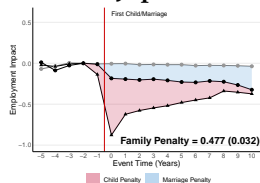
A: Brazil



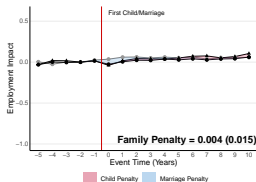
B: China



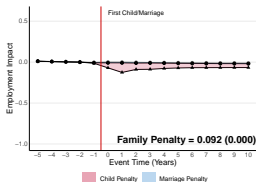
C: Japan



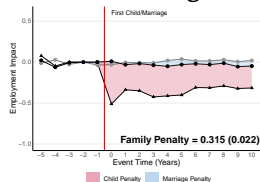
E: Rwanda



F: Sweden

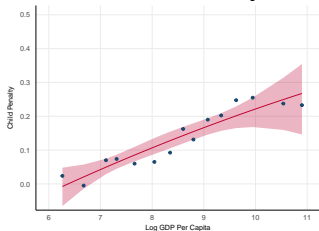


G: United Kingdom

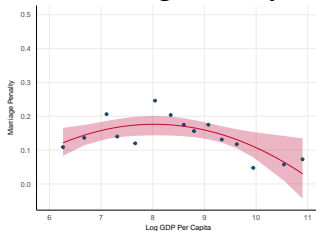


SUBSTITUTION BETWEEN MARRIAGE AND CHILD PENALTIES OVER THE COURSE OF DEVELOPMENT

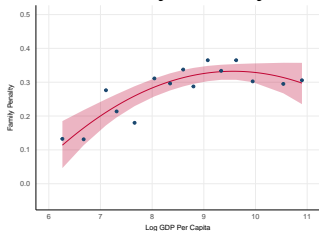
A: Child Penalty



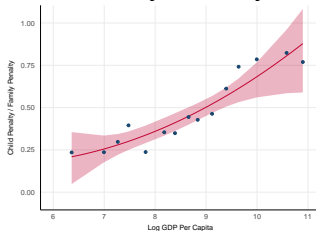
B: Marriage Penalty



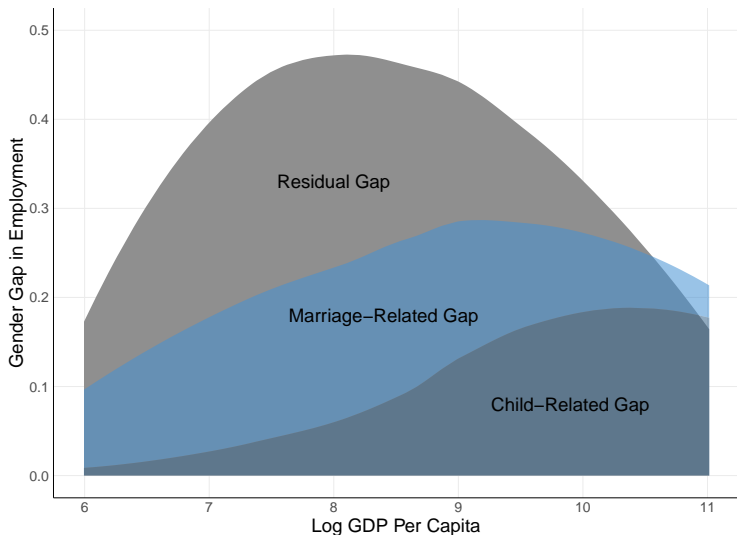
C: Family Penalty



D: Child Penalty / Family Penalty

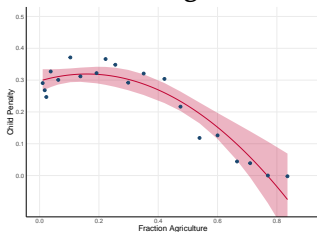


DECOMPOSITION OF GENDER GAP BY LEVELS OF DEVELOPMENT

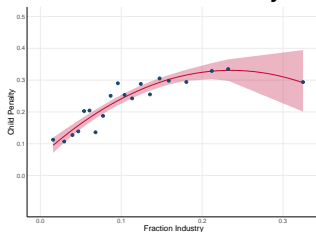


CHILD PENALTIES AND STRUCTURAL TRANSFORMATION

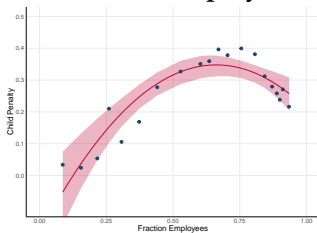
A: Fraction Agriculture



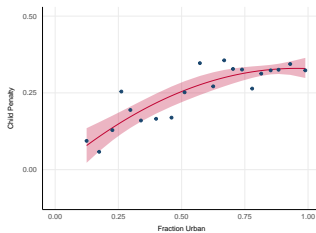
B: Fraction Industry



C: Fraction Employees



D: Fraction Urban



CHILD PENALTIES, MARRIAGE PENALTIES, & ECONOMIC DVLPT

- **At very low level of development:**
 - Very low income & high fertility
 - High employment in agriculture & population mostly rural
 - No separation between household & workplace
 - Significant GG but driven by factors predating arrival of children
- As economy develops:
- At higher level of development:

CHILD PENALTIES, MARRIAGE PENALTIES, & ECONOMIC DVLPT

- At very low level of development:
- **As economy develops:**
 - Structure of the economy changes: ↓ agriculture, ↑ urbanization
 - Formalization: ↑ salaried work, separation btw household & workplace
 - ↓ fertility, ↑ investment in child HK
 - Specialization btw child care & work increases at the expense of women
 - Apex of the stay-at-home mom model
- At higher level of development:

CHILD PENALTIES, MARRIAGE PENALTIES, & ECONOMIC DVLPT

- At very low level of development:
- As economy develops:
- **At higher level of development:**
 - Women close the education gap, and the marriage-related gap
 - But child penalties stick preventing full convergence!

TAKING STOCK

- We build global atlas of child penalties in employment covering 95% of world population
- We document substantial variation in child penalties:
 - Across development level
 - Conditional on development
- We also investigate marriage penalties
 - Sizeable at early and intermediate stages of development
 - But converges towards zero at later stages
 - Family formation critical to understanding evolution of gender inequality
- Atlas Project allows for richer analysis of mechanisms & dynamics
 - Marriage and parenthood penalties are result of complex social equilibria

TAKING STOCK

- We build global atlas of child penalties in employment covering 95% of world population
- We document **substantial variation in child penalties**:
 - **Across development level**: Child penalties go from explaining tiny fraction to entirety of GG over course of development
 - Conditional on development
- We also investigate marriage penalties
 - Sizeable at early and intermediate stages of development
 - But converges towards zero at later stages
 - Family formation critical to understanding evolution of gender inequality
- Atlas Project allows for richer analysis of mechanisms & dynamics
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TAKING STOCK

- We build global atlas of child penalties in employment covering 95% of world population
- We document **substantial variation in child penalties**:
 - Across development level
 - **Conditional on development**: Variation in penalties responsible for large variation in GG across developed countries
- We also investigate marriage penalties
 - Sizeable at early and intermediate stages of development
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- Atlas Project allows for richer analysis of mechanisms & dynamics
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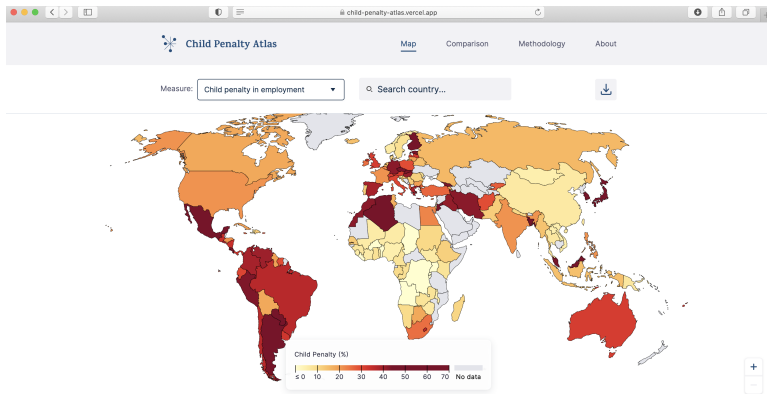
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THE ATLAS PROJECT

- Build collaborative infrastructure for sharing, using and disseminating the data

<https://childpenaltyatlas.org>



IMPROVING THE ATLAS: HOW TO CONTRIBUTE

1. **Contributing better data for countries already covered**

- Expand use of panel data sources (e.g. LIS countries)
- Expand use of admin data sources (e.g. European countries)
- Surveys with larger & more granular samples (e.g. India)
- Better identification of unpaid leave (e.g. Croatia)

2. Covering new countries and/or more time periods

3. Contributing new outcomes

IMPROVING THE ATLAS: HOW TO CONTRIBUTE

1. Contributing better data for countries already covered

2. **Covering new countries and/or more time periods**

- High-income missing countries (e.g. New Zealand)
- Missing countries in Middle East (e.g. Saudi Arabia)
- Missing countries in Central Asia (e.g. Kazakhstan)
- More recent data for key countries (e.g. China)
- Historical censuses (e.g. NAPP project)

3. Contributing new outcomes

IMPROVING THE ATLAS: HOW TO CONTRIBUTE

1. Contributing better data for countries already covered
2. Covering new countries and/or more time periods
3. **Contributing new outcomes**
 - Marriage penalties (i.e. based on info on timing of marriage)
 - Penalties in other labor market outcomes: e.g. earnings, hours worked.
 - Others: time-use, health & well-being, beliefs, etc.

IMPROVING THE ATLAS: HOW TO CONTRIBUTE

1. Contributing better data for countries already covered
 2. Covering new countries and/or more time periods
 3. Contributing new outcomes
 - Marriage penalties (i.e. based on info on timing of marriage)
 - Penalties in other labor market outcomes: e.g. earnings, hours worked.
 - Others: time-use, health & well-being, beliefs, etc.
-
- We can provide help & scripts to guarantee consistency for:
 - **Variable harmonization**
 - **Pseudo-panelization**
 - **Event-study specifications & inference**

Thank you!

Table: Data Summary

Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Afghanistan	DHS	2015	1	Weekly	Yes	60	28,709
Albania	DHS	2008-2017	2	Weekly	No	330	15,392
Algeria	MICS	2012-2019	4	Weekly	No	91	91,816
Angola	Census	2014	1	Weekly	Yes	56	541,452
Argentina	IPUMS	1970-2001	4	Weekly	Yes	70	3,391,576
Armenia	IPUMS	2001-2011	2	Weekly	No	1,095	189,992
Australia	Panel Data	2001-2019	19	Weekly	No	143	387,695
Austria	Panel Data	1981-2017	38	Annual	No	730	14,104,688
Bangladesh	IPUMS	1991-2011	3	Weekly	No	84	7,250,559
Belarus	IPUMS	1999-2009	2	Weekly	Yes	1,095	660,960
Belgium	LIS	1985-2017	21	Annual	No	344	88,473
Benin	IPUMS	1979-2013	4	Weekly	No	56	536,792
Bolivia	IPUMS	1976-2001	3	Weekly	Yes	30	486,681
Botswana	IPUMS	1991-2011	3	Weekly	No	84	77,961
Brazil	IPUMS	1991-2010	3	Weekly	Yes	183	18,447,111
Bulgaria	SILC	2007-2020	14	Weekly	No	730	58,282
Burkina Faso	IPUMS	1996-2006	2	Weekly	No	70	577,352
Burundi	DHS	2010-2016	2	Weekly	Yes	84	22,320
Cambodia	IPUMS	1998-2008	2	Weekly	No	90	730,506

Table: Data Summary

Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Cambodia	IPUMS	1998-2008	2	Weekly	No	90	730,506
Cameroon	IPUMS	1976-2005	3	Weekly	No	70	662,598
Canada	IPUMS	2011	1	Weekly	Yes	590	292,388
Chad	DHS	1996-2014	3	Weekly	Yes	70	17,343
Chile	LIS	1990-2017	13	Weekly	No	167	839,202
China	Mini Census	2005	1	Weekly	Yes	152	811,326
Colombia	IPUMS	1973-2005	3	Weekly	Yes	91	2,130,657
Congo, DRC	DHS	2007-2013	2	Weekly	Yes	56	23,862
Congo	DHS	2005-2011	2	Weekly	No	105	14,376
Costa Rica	IPUMS	1973-2011	4	Weekly	Yes	91	368,480
Cote d'Ivoire	LIS	2002-2015	3	Weekly	No	98	38,799
Croatia	SILC	2010-2020	11	Weekly	No	669	56,232
Cuba	IPUMS	2002-2012	2	Weekly	Yes	365	637,368
Cyprus	SILC	2009-2020	11	Weekly	No	113	45,089
Czech Rep.	LIS	1992-2016	7	Weekly	No	1,095	51,163
Denmark	Panel Data	1980-2017	38	Annual	Yes	551	20,729,380
Dominican Rep.	IPUMS	1981-2010	3	Weekly	No	84	594,864

Table: Data Summary

Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Ecuador	IPUMS	1982-2010	4	Weekly	Yes	70	1,161,328
Egypt	IPUMS	1996-2006	2	Weekly	No	91	4,022,460
El Salvador	IPUMS	1992-2007	2	Weekly	Yes	84	267,580
Estonia	SILC	2009-2020	12	Weekly	No	517	48,276
Ethiopia	DHS	2000-2016	4	Weekly	Yes	60	49,732
Fiji	IPUMS	1976-2014	5	Weekly	No	84	97,640
Finland	SILC	2009-2020	12	Weekly	No	338	86,340
France	LFS	1990-2020	31	Weekly	Yes	1,095	1,113,179
Gabon	DHS	2000-2012	2	Weekly	No	56	9,908
Gambia	LFS	2010-2015	2	Weekly	Yes	42	22,336
Georgia	LFS	2020-2021	2	Weekly	Yes	183	41,424
Germany	LIS	1989-2005	35	Weekly	No	909	322,910
Ghana	IPUMS	2000-2010	2	Weekly	Yes	84	827,642
Greece	IPUMS	1981-2001	3	Weekly	No	246	1,065,021
Guatemala	IPUMS	1964-2002	5	Weekly	Yes	84	660,925
Guinea	IPUMS	1983-2014	3	Weekly	No	56	387,468
Guyana	LFS	2017-2021	5	Weekly	Yes	49	28,535

Table: Data Summary

Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Haiti	IPUMS	1971-2003	2	Weekly	Yes	42	285,874
Honduras	IPUMS	1974-2001	3	Weekly	Yes	42	302,181
Hungary	IPUMS	1990-2011	3	Weekly	No	1,095	482,283
Iceland	SILC	2004-2018	15	Weekly	No	365	45,120
India	DHS	2005-2015	2	Weekly	Yes	42	238,228
Indonesia	IPUMS	1971-2010	4	Weekly	Yes	46	10,847,064
Iran	IPUMS	2006	1	Weekly	Yes	122	480,443
Iraq	IPUMS	1997	1	Weekly	No	32	383,254
Ireland	LIS	1994-2018	20	Weekly	No	252	74,060
Israel	LIS	1986-2013	15	Weekly	No	106	111,300
Italy	LIS	1986-2020	14	Weekly	No	478	117,180
Jamaica	IPUMS	1982-2001	3	Weekly	Yes	56	127,494
Japan	Panel Data	2004-2020	17	Weekly	Yes	426	58,667
Jordan	IPUMS	2004	1	Weekly	Yes	70	149,651
Kenya	IPUMS	1989-2009	3	Weekly	Yes	91	1,397,772
Kyrgyz Rep.	DHS	1997-2012	2	Weekly	No	126	9,576
Laos	IPUMS	2005	1	Weekly	No	90	138,689
Latvia	SILC	2009-2020	12	Weekly	No	605	38,556

Table: Data Summary

Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Lesotho	IPUMS	1996-2006	2	Weekly	No	84	78,768
Liberia	IPUMS	2008	1	Weekly	No	98	63,017
Lithuania	LIS	2009-2018	10	Annual	No	730	28,470
Luxembourg	LIS	1985-2013	9	Weekly	No	450	28,467
Madagascar	DHS	1992-2008	4	Weekly	Yes	98	27,120
Malawi	IPUMS	1987-2008	3	Weekly	Yes	56	794,223
Malaysia	IPUMS	1991-2000	2	Weekly	Yes	60	230,466
Maldives	DHS	2009-2016	2	Weekly	No	60	15,456
Mali	IPUMS	1987-2009	3	Weekly	No	56	682,800
Mauritius	IPUMS	1990-2011	3	Weekly	Yes	84	123,057
Mexico	IPUMS	1970-2015	6	Weekly	Yes	70	11,766,780
Moldova	DHS	2005	1	Weekly	No	1,095	4,949
Mongolia	IPUMS	2000	1	Weekly	No	120	80,348
Morocco	IPUMS	1982-2004	3	Weekly	No	49	1,420,896
Mozambique	IPUMS	1997-2007	2	Weekly	Yes	60	800,136
Myanmar	IPUMS	2014	1	Weekly	No	42	1,466,036

Table: Data Summary

Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Namibia	DHS	1992-2013	4	Weekly	Yes	84	19,460
Nepal	IPUMS	2001-2011	2	Weekly	No	52	1,298,668
Netherlands	LIS	1990-2018	11	Annual	No	85	86,317
Nicaragua	IPUMS	1995-2005	2	Weekly	Yes	56	202,638
Niger	DHS	1992-2012	4	Weekly	Yes	56	27,392
Nigeria	DHS	1990-2018	6	Weekly	Yes	84	102,960
Norway	Panel Data	1993-2017	25	Annual	No	395	8,176,350
Pakistan	LFS	2010-2021	11	Weekly	Yes	42	464,002
Panama	IPUMS	1960-2010	6	Weekly	Yes	56	311,922
Papua NG	IPUMS	1980-2000	3	Weekly	Yes	0	292,932
Paraguay	IPUMS	1962-2002	5	Weekly	Yes	42	400,195
Peru	IPUMS	1993-2007	2	Weekly	Yes	90	1,324,900
Philippines	IPUMS	1990	1	Weekly	No	60	1,811,807
Poland	LIS	1992-2020	20	Weekly	No	365	682,580
Portugal	IPUMS	1981-2011	4	Weekly	No	61	740,056
Puerto Rico	IPUMS	1990-2010	4	Weekly	Yes	56	131,064
Romania	IPUMS	1992-2011	3	Weekly	No	730	2,076,342
Russia	IPUMS	2002-2010	2	Weekly	No	548	4,308,868
Rwanda	IPUMS	2002-2012	2	Weekly	No	84	598,204

Table: Data Summary

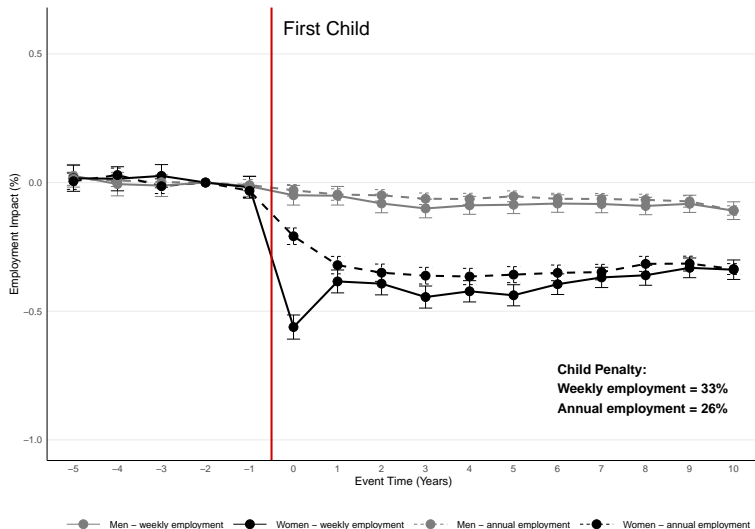
Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Senegal	IPUMS	1988-2002	2	Weekly	No	98	234,000
Serbia	SILC	2013-2020	8	Weekly	No	341	51,688
Sierra Leone	IPUMS	2004	1	Weekly	No	84	81,262
Slovakia	LIS	1992-2018	10	Weekly	No	1,095	64,970
Slovenia	LIS	1997-2012	6	Weekly	No	341	24,306
South Africa	IPUMS	1996-2011	3	Weekly	No	0	2,268,054
South Korea	LIS	2006-2016	6	Weekly	No	456	74,316
South Sudan	IPUMS	2008	1	Weekly	Yes	90	88,697
Spain	IPUMS	1991-2001	2	Weekly	No	113	1,508,936
Sudan	IPUMS	2008	1	Weekly	Yes	42	1,027,125
Suriname	IPUMS	2012	1	Weekly	No	112	12,141
Sweden	Panel Data	1997-2017	21	Annual	Yes	484	30,606,597
Switzerland	Panel Data	1981-2020	40	Annual	No	100	32,503,240
Taiwan	LIS	1981-2016	11	Annual	No	NA	209,495
Tanzania	IPUMS	1988-2012	3	Weekly	No	84	2,263,515
Thailand	IPUMS	1990-2000	2	Weekly	No	90	337,138

Table: Data Summary

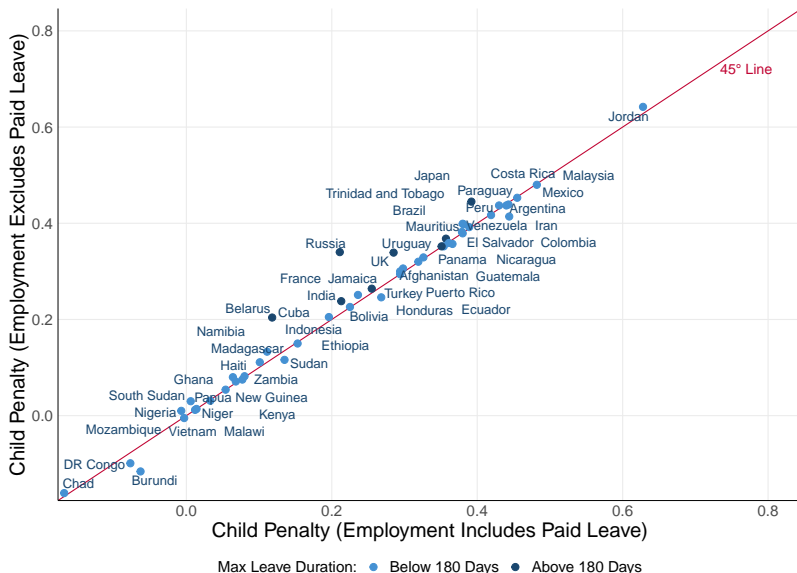
Country	Source	Years	No. Waves	Employment Measure	Maternity Leave		No. Obs.
					Excluded	Max Days	
Timor-Leste	DHS	2009-2016	2	Weekly	No	84	19,276
Togo	IPUMS	2010	1	Weekly	No	98	122,987
Trin. & Tob.	IPUMS	1970-2011	4	Weekly	Yes	91	101,348
Tunisia	Census	2004	1	Weekly	Yes	183	485,077
Turkey	IPUMS	1985-2000	3	Weekly	Yes	91	2,405,829
Uganda	IPUMS	1991-2014	3	Weekly	No	60	1,681,773
UK	APS	2012-2020	9	Weekly	Yes	274	612,621
United States	CPS/ACS	1968-2020	53	Weekly	Yes	0	78,872,671
Uruguay	IPUMS	1963-2011	5	Weekly	Yes	192	444,810
Venezuela	IPUMS	1971-2001	4	Weekly	Yes	126	1,626,772
Vietnam	IPUMS	1989-2009	3	Weekly	Yes	122	6,910,548
Zambia	IPUMS	1990-2010	3	Weekly	Yes	84	630,762
Zimbabwe	IPUMS	2012	1	Weekly	No	77	166,126

EMPLOYMENT MEASURES: WEEKLY VS ANNUAL

UNITED KINGDOM

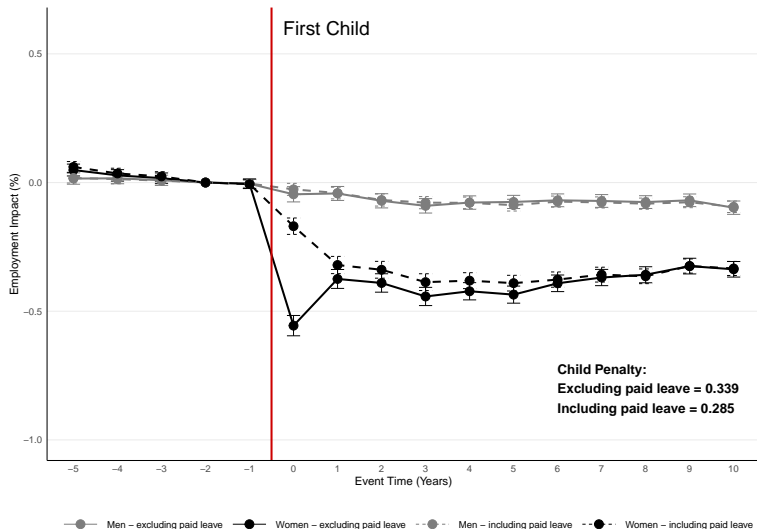


CHILD PENALTIES: EXCLUDING VS INCLUDING PL



EMPLOYMENT MEASURES: WITH VS WITHOUT PL

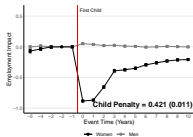
UNITED KINGDOM



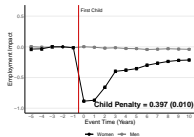
PSEUDO-ES: DIFFERENT MATCHING SPECIFICATIONS

Hungary

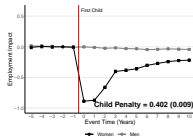
A: Match on Year, Age, Gender



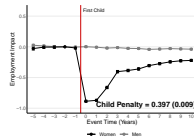
B: Add Education



C: Add Marital Status

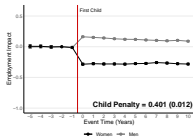


D: Add Urban/Rural

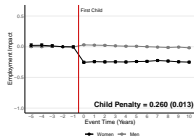


South Africa

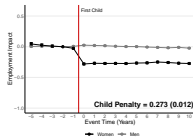
E: Match on Year, Age, Gender



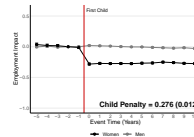
F: Add Education



G: Add Marital Status

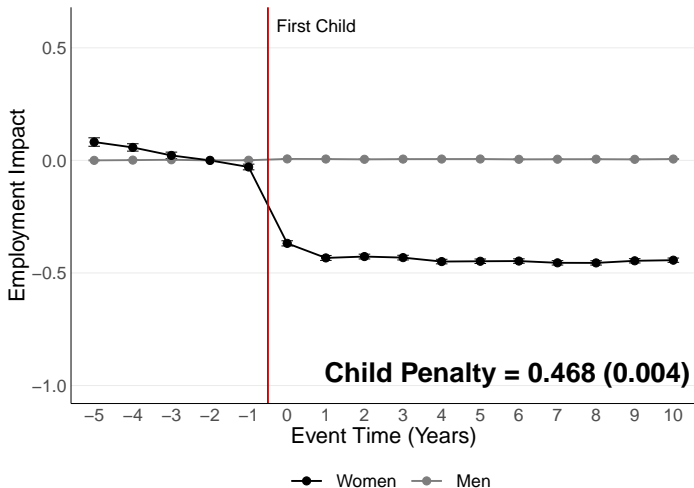


H: Add Urban/Rural



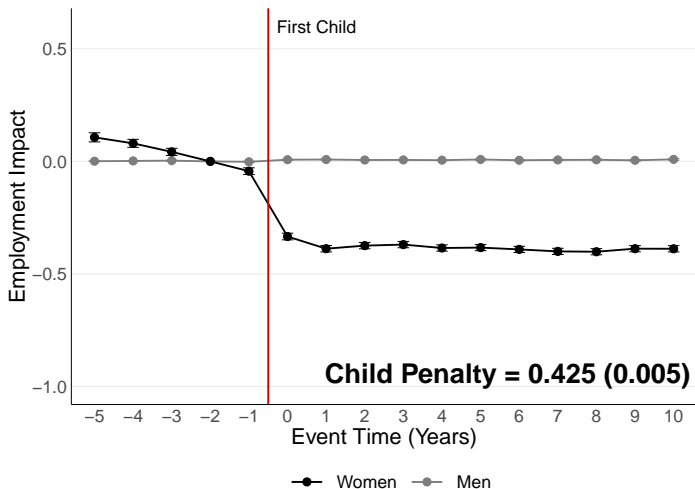
CHILD PENALTY IS ROBUST TO MARRIAGE TIMING

CASE STUDY OF BRAZIL: SAMPLE OF INDIVIDUALS WITH KNOWN MARRIAGE DATE



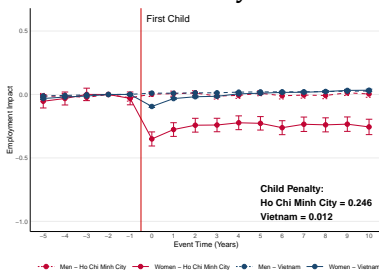
CHILD PENALTY IS ROBUST TO MARRIAGE TIMING

CASE STUDY OF BRAZIL: EXCLUDE INDIVIDUALS GETTING MARRIED AT $t \leq 2$

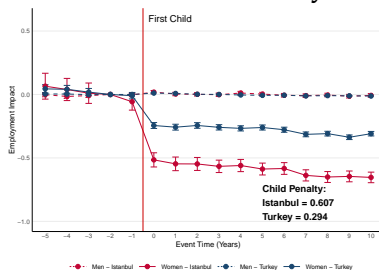


CHILD PENALTIES IN CITIES VS COUNTRIES

A: Ho Chi Minh City vs Vietnam



B: Istanbul vs Turkey



Back